executing a plurality of times, individual ink droplet ejections from the nozzle orifice, while varying an ejecting condition;

identifying ~~a natural period of the ink pressure fluctuation in the pressure chamber of the assembled recording head based on a plurality of measurements~~ a correlation between ejecting conditions and ejecting results based on the plurality of ink droplet ejections; and

classifying the assembled recording head into a plurality of ranks, based on the identified ~~natural period~~ correlation.

2. (Currently Amended) The manufacturing method as set forth in claim 1, wherein the ~~identifying~~ step of executing the ink droplet ejections includes the steps of:

supplying an evaluation signal including at least an excitation element which excites the ink pressure fluctuation, and an ejection element which follows the excitation element to eject the ink droplet from the nozzle orifice; and

measuring an ejected amount of the ink droplet at plural times as the ejecting results while varying a time period between a termination end of the excitation element and an initial end of the ejection element as the ejecting conditions~~; and~~

~~identifying the natural period based on a correlation between the time period and the measured ink amount~~.

3. (Previously Amended) The manufacturing method as set forth in claim 2, wherein the time period includes at least:

a first time period which is determined such that the ejected ink amount becomes minimum when the natural period is as per a designed criterion;

a second time period which is shorter than the first time period; and

a third time period which is longer than the first time period.

4. (Currently Amended) The manufacturing method as set forth in claim 1, wherein the ~~measuring~~ step of executing the ink droplet ejections includes the steps of:

supplying an evaluation signal including at least an excitation element which excites the ink pressure fluctuation, and an ejection element which follows the excitation element to eject the ink droplet from the nozzle orifice; and

measuring an ejected speed of the ink droplet at plural times while as the ejecting results varying a time period between a termination end of the excitation element and an initial end of the ejection element~~; and~~

~~identifying the natural period based on a correlation between the time period and the measured ejection speed~~.

5. (Previously Amended) The manufacturing method as set forth in claim 4, wherein the time period includes at least:

a first time period which is determined such that the ejection speed becomes minimum when the natural period is as per a designed criterion;

a second time period which is shorter than the first time period; and

a third time period which is longer than the first time period.

6. (Previously Amended) The manufacturing method as set forth in claim 2, wherein duration of the excitation element is equal to the natural period as per a designed criterion or less.

7. (Original) The manufacturing method as set forth in claim 6, wherein the duration of the excitation element is equal to one half of the natural period as per the designed criterion or less.

8. (Currently Amended) The manufacturing method as set forth in claim 1, wherein the plurality of ranks includes at least a first rank which indicates ~~the identified~~ an actual natural period is as per a designed criterion, a second rank which indicates the ~~measured~~ actual natural period is shorter than the designed criterion, ~~and~~ a third rank which indicates the ~~measured~~ actual natural period is longer than the designed criterion, and a fourth rank which indicates an erroneous condition.

9. (Original) The manufacturing method as set forth in claim 1, further comprising the step of indicating the classified rank on the assembled recording head.

10. (Original) The manufacturing method as set forth in claim 9, wherein the classified rank is indicated by a symbol.

11. (Original) The manufacturing method as set forth in claim 9, wherein the rank is determined with regard to the respective nozzle rows; and

wherein the rank is indicated by a symbol which indicates a combination of the classified ranks of the respective nozzle rows.

12. (Original) The manufacturing method as set forth in claim 9, wherein the classified rank is indicated by coded information which is readable by an optical reader.

13. (Original) The manufacturing method as set forth in claim 1, further comprising the steps of:

providing a memory; and

storing electrically information indicating the classified rank in the memory.

14. (Original) A method of driving the ink jet recording head manufactured by the method as set forth in claim 1, comprising the steps of:

providing a drive signal including at least one wave element having a control factor which is defined in accordance with the classified rank; and

supplying the drive signal to the pressure generating element.

15. (Original) The driving method as set forth in claim 14, wherein the drive signal is provided with an ejection element which ejects an ink droplet from the nozzle orifice and a damping element which follows the ejection element to damp vibration of a meniscus of the ink in the nozzle orifice; and

wherein a control factor of the damping element is defined in the drive signal provision step.

16. (Original) The driving method as set forth in claim 14, wherein the drive signal is provided with a characteristics changing element which changes ejection characteristics of the ink droplet; and

wherein a control factor of the characteristics changing element is defined in the drive signal provision step.

17. (Original) An ink jet recording apparatus, comprising:

an ink jet recording head, manufactured by the method as set forth in claim 1; and

a waveform controller, which provides a drive signal including at least one wave element having a control factor which is defined in accordance with the classified rank.

18. (Original) The recording apparatus as set forth in claim 17, wherein the drive signal is provided with an ejection element which ejects an ink droplet from the nozzle orifice and a

damping element which follows the ejection element to damp vibration of a meniscus of the ink in the nozzle orifice; and

wherein the waveform controller defines a control factor of the damping element.

19. (Previously Amended) The recording apparatus as set forth in claim 17, wherein the drive signal is provided with a drive pulse including:

an expansion element, which expands the pressure chamber such an extent that an ink droplet is not ejected from the nozzle orifice;

an ejection element, which follows the expansion element to contract the pressure chamber to eject an ink droplet from the nozzle orifice;

a holding element, which follows the ejection element to hold the contracted state of the pressure chamber for a predetermined duration; and

damping element, which follows the holding element to expand the pressure chamber to damp vibration of a meniscus of the ink in the nozzle orifice; and

wherein the waveform controller defines the duration of the holding element.

20. (Previously Amended) The recording apparatus as set forth in claim 17, wherein the drive signal is provided with a drive pulse including:

an expansion element, which expands the pressure chamber to pull a meniscus of ink in the nozzle orifice toward the pressure chamber;

an ejection element, which follows the expansion element to contract the pressure chamber to eject a center portion of the meniscus as an ink droplet; and

a damping element, which follows the ejection element to expand the pressure chamber to damp vibration of the meniscus; and

wherein the waveform controller defines the duration of the damping element.

21. (Previously Amended) The recording apparatus as set forth in claim 17, wherein the drive signal is provided with a drive pulse including:

an ejection pulse, which ejects an ink droplet from the nozzle orifice;

a damping pulse, which follows the ejection pulse to damp vibration of a meniscus of ink in the nozzle orifice; and

a connecting element, which connects a termination end of the ejection pulse and an initial end of the damping pulse; and

wherein the waveform controller defines duration of the connecting element.

22. (Previously Amended) The recording apparatus as set forth in claim 17, wherein the drive signal is provided with a plurality of drive pulses for driving the pressure generating element and a connecting element which connects a termination end of a preceding drive pulse and an initial end of a subsequent drive pulse; and

wherein the waveform controller defines duration of the second connecting element.

23. (Original) The recording apparatus as set forth in claim 17, wherein the drive signal is provided with a characteristics changing element which changes ejection characteristics of an ink droplet; and

wherein the waveform controller defines a control factor of the characteristics changing element.

24. (Previously Amended) The recording apparatus as set forth in claim 23, wherein the drive signal is provided with a drive pulse including:

an expansion element, which expands the pressure chamber such an extent that an ink droplet is not ejected; and

an ejection element, which follows the expansion element to contract the pressure chamber to eject an ink droplet from the nozzle orifice; and

wherein duration of at least one of the first expansion element and the first ejection element is defined by the waveform controller.

25. (Previously Amended) The recording apparatus as set forth in claim 23, wherein the drive signal is provided with a drive pulse including:

an expansion element, which expands the pressure chamber such an extent that an ink droplet is not ejected; and

an ejection element, which follows the expansion element to contract the pressure chamber to eject an ink droplet from the nozzle orifice; and

wherein a potential difference between an initial end and a termination end of at least one of the expansion element and the ejection element is defined by the waveform controller.

26. (Previously Amended) The recording apparatus as set forth in claim 23, wherein the drive signal is provided with a drive pulse including:

an expansion element, which expands the pressure chamber such an extent that an ink droplet is not ejected;

a holding element, which follows the expansion element to hold the expanded state of the pressure chamber; and

an ejection element, which follows the expansion element to contract the pressure chamber to eject an ink droplet from the nozzle orifice; and

wherein the waveform controller defines duration of the holding element.

27. (Previously Amended) The recording apparatus as set forth in claim 23, wherein the drive signal is provided with a pulse including:

an expansion element, which expands the pressure chamber to pull a meniscus of ink in the nozzle orifice toward the pressure chamber; and

an ejection element, which follows the expansion element to contract the pressure chamber to eject a center portion of the meniscus as an ink droplet; and

wherein duration of at least one of the expansion element and the ejection element is defined by the waveform controller.

28. (Previously Amended) The recording apparatus as set forth in claim 23, wherein the drive signal is provided with a drive pulse including:

an expansion element, which expands the pressure chamber to pull a meniscus of ink in the nozzle orifice toward the pressure chamber; and

an ejection element, which follows the expansion element to contract the pressure chamber to eject a center portion of the meniscus as an ink droplet; and

wherein a potential difference between an initial end and a termination end of at least one of the expansion element and the ejection element is defined by the waveform controller.

29. (Previously Amended) The recording apparatus as set forth in claim 23, wherein the drive signal is provided with a drive pulse including:

an expansion element, which expands the pressure chamber to pull a meniscus of ink in the nozzle orifice toward the pressure chamber;

a holding element, which follows the expansion element to hold the expanded state of the pressure chamber; and

an ejection element, which follows the holding element to contract the pressure chamber to eject a center portion of the meniscus as an ink droplet; and

wherein the waveform controller defines duration of the holding element.

30. (Currently Amended) The driving method as set forth in claim 14, wherein the plurality of ranks includes at least a first rank which indicates ~~the identified~~ an actual natural period is as per a designed criterion, a second rank which indicates the ~~measured~~ actual natural period is shorter than the designed criterion, ~~and~~ a third rank which indicates the ~~measured~~ actual natural period is longer than the designed criterion, and a fourth rank which indicates an erroneous condition.

31. (Original) The recording apparatus as set forth in claim 17, further comprising: a memory, which electrically stores information indicating the classified rank, the memory electrically connected to the waveform controller.

32. (Original) The recording apparatus as set forth in claim 17, further comprising:

a rank indicator, provided with the recording head to indicate the classified rank thereof so as to be optically readable; and

an optical reader, which optically reads the classified rank indicated by the rank indicator,

wherein the waveform controller acquires the classified rank read by the optical reader.

33. (Original) The recording apparatus as set forth in claim 17, wherein the pressure generating element is a piezoelectric vibrator.

34. (Original) The recording apparatus as set forth in claim 17, wherein the pressure generating element is a heating element.

35. (Previously Amended) An ink jet recording head, comprising a rank indicator, which indicates one of the ranks classified by the method as set forth in claim 1.

36. (Original) The recording head as set forth in claim 35, wherein the pressure generating element is a piezoelectric vibrator.

37. (Original) The recording apparatus as set forth in claim 35, wherein the pressure generating element is a heating element.

38. (Previously Added) The manufacturing method as set forth in claim 4, wherein duration of the excitation element is equal to the natural period as per the designed criterion or less.

39. (c Added) The manufacturing method as set forth in claim 38, wherein the duration of the excitation element is equal to one half of the natural period as per the designed criterion or less.

40. (Previously Added) The ink jet recording head as set forth in claim 35, wherein the classified rank is indicated by a symbol.

41. (Previously Added) The ink jet recording head as set forth in claim 35, further comprising a plurality of nozzle rows;

wherein the rank is determined with regard to the nozzle rows; and

wherein the rank is indicated by a symbol which indicates a combination of the classified ranks of the nozzle rows.

42. (Previously Added) The ink jet recording head as set forth in claim 35, wherein the classified rank is indicated by coded information which is readable by an optical reader.

43. (Previously Added) The ink jet recording head as set forth in claim 35, further comprising a memory which electrically stores information indicating the classified rank.